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A

TREATISE

ON

DAIRY MANAGEMENT;

WITH RULES FOR

ASCERTAINING THE VALUE AND PRODUCE

OF

NEW MILK.

TO WHICH ARE ADDED,

DIRECTIONS FOR PREPARING BUTTER

FOR THE

HOME AND FOREIGN MARKETS;

WITH USEFUL REMARKS ON

THE DIFFERENT BREEDS OF CATTLE BEST ADAPTED FOR THE DAIRY;

AND ON THE MOST ECONOMICAL MODE OF

FEEDING AND HERDING THEM.

BY JOHN WILLIAMS.

CORK:
PRINTED BY GEORGE NASH, 16, PRINCE'S-STREET.
1845.

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P.A.L.

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N6

TREATISE.

HAVING had much experience in the management of extensive Dairies, and in the manufacture of Butter, for the Home and Foreign Markets, for a period of nearly twenty years, I have drawn up the following treatise on these subjects, for the information of the Dairy Farmers of Ireland.

The stocks which have chiefly come under my notice, were what are generally known as the well-bred Irish Cow, and therefore my observations, must in a great degree, refer to the produce of that animal, which I have found to be considerable, if *well selected.* There is no doubt, that this description of cow will hold her milk as long as many other breeds, and besides, will be found to be exceedingly productive and remunerative to the farmer.

But though I have thus borne testimony in favour of the Irish Cow, I would also recommend crosses of the Dutch and Durham, which produce a cow, that I know from experience, to be highly useful to the Dairy Farmer, and remarkable for its fattening and milking qualities. A cross of the Ayrshire, too, with any other breed, is much approved, and is found to have decided propensities to milk, with every tendency to fatten. The only objection to the Ayrshire cross, that I know of is, that they are not, generally speaking, so heavy or large for the Victualler, as the former breeds; still they are nevertheless a good cow for the small farmer, and one that is considered better adapted for light soils, than either of the other breeds.

The next subject deserving of consideration is the Food; and the best green feeding, that I am aware of, for Dairy Cattle, is, Clover, Vetches, Cabbage, Potatoes, Carrots, &c., grown on ground highly manured, set in proper season, and well cultivated; when Turnips are given, the Swedish are considered the best.

The best description of artificial food is grains and wash, with hay, if had for the value, and convenient to the dairy.

Too much attention cannot be given to the stalling of cattle, so as to ensure comfort and cleanliness; without this, no matter what description of food is given, the cattle will not prove so well. For instance, litter should be always dry and clean; the cow-house not much confined; sufficient room between each cow; and the building properly ventilated.

It may be necessary here to remark, in reference to the Ventilation of Cow-houses, that care should be taken to have each window elevated higher than the cow, so as to prevent a current of air from passing and repassing on the cow's head and shoulders—the contrary is a very prevailing custom. The window need not be more than one foot high, by three feet wide, and at equal distance from each other, say, from six to seven feet. When the cow-house is double, the windows should correspond in number, height, and width; observing, that the windows on either side should be parallel with each other. By this means a free current of air is secured throughout the building, without any risk to the cattle of catching cold, and will in a great degree keep off distemper. The troughs should be emptied daily, and no more food placed before a cow than what she is able to eat at each meal. When cows are stalled in by night, the Herdsman should, before bed time, examine, and see that none of their fodder be scattered; when this is done, the food should be collected and put into the troughs again, for the cattle to make use of. Should any of the cows be without fodder, a little should be placed before them to feed on, during the night, as it is well known that some cows will consume more than others. About two hours previous to the milking of the cows in the morning, the Herdsman should again see whether any of the feeding be scattered, and if so, to collect it and replace it into the troughs, and if any of the cows be without fodder, a small quantity should be given. The great object to attain in the feeding of cattle is, that while you give each cow a sufficient quantity, you at the same time take care that none of it be wasted. When the cows are turned out in the morning, if there by any fodder remaining in the troughs, it should be collected, and such dry cattle as are on the farm, allowed to eat it. This will prevent waste, and enable the Herdsman to have the troughs emptied daily, and to place in them a fresh supply of fodder, for the evening. The troughs should be washed at least once a week with boiling water, and well rubbed with straw (twisted hard) in the usual manner. If the cows are getting wash, that may be used for cleansing the troughs instead of boiling water, and it would answer after the washing, when mixed with other food, for the Pigs.

When cows are allowed out at night, the Herdsman should rouse and drive them from the field they were sleeping in, two hours previous to their being stalled for milking, so as to admit them to better pasture, while the dew is on the grass; and in no case should the cows be milked either morning or evening for at least half an hour after being stalled. When this is not attended to, in summer it will be found that the milk is unsettled and frothy, not so productive or likely to keep so long sweet; while in winter, the cows, if not permitted to feed during the half hour before milking, will not give their milk freely.

The Women employed in a Dairy, should be competent for the duty, and above all things, capable of milking a cow properly and well; neglect in this instance, will result in injury to the cattle, and as a consequence, they will run dry before their usual time. One incompetent woman, in an extensive dairy, singular as it may appear, will have the effect of injuring the entire stock; for this reason, that the same woman may never milk the same cow each day. The proper position for a dairy woman to take when milking is, to sit opposite the cow's udder, and by drawing the paps softly and quickly with the entire of both hands, the cow will yield and give her milk well.

When cows run dry, their paps should be drawn every second or third day, until they are entirely dry and clean. Inattention to this, is often the cause of sore udders and loss of the paps.

Having laid down the foregoing rules for the proper herding and feeding of dairy cattle, I now direct attention to the details connected with the management and working out of a dairy.

Observing the urgent necessity that exists in having some check on the trustees or persons employed in charge of dairies, I have, from personal observation and close application, attended daily to the working of a dairy for twelve months, and, after considerable labour, I have made out the following calculations and scale, with explanations and examples, together with a plan for the more correct keeping of Dairy Accounts. The object I have had in view was for the purpose of showing the Dairy Farmer what the produce of his dairy should make, at the different seasons of the year, and the exact value of a gallon of new milk; taking into account the varying price of the produce, in milk or butter. This scale will also enable the Gentleman Farmer (by measuring the new milk* and keeping the account of the produce according to the accompanying plan,) to learn whether the trustee or person in charge of his dairy is giving a proper return of the produce, according to the quantity of skim-milk sent to market, the cream taken off, together with any or either that might be consumed in the house, or for any other purpose. It must be borne in mind, that skim-milk and cream should measure nearly the same quantity as the new milk when set, and by referring to the scale, it will show whether the full return of the cream, butter, and milk is given. It may be necessary to state, in order to prove the correctness of the rules I have laid down, that every precaution should be adopted to provide against the admixture of any ingredient in the new milk, likely to injure not only the quality but the produce. Such things have been done, and I wish to put the farmer on his guard against them.

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* The following is a simple plan, that might be adopted for the measurement of milk. Provide a milk cooler, of the following dimensions; top, 24 inches, bottom, 28 inches in diameter, and 31

inches in height. The timber should be one inch thick, well seasoned, bound with vat hoops, and well driven. Place the cooler on a level surface, and get an oak or ash rod, the bottom of it cased with copper, to prevent wear. Pour one gallon of water into the cooler, and when it settles, take the height on the rod, which you mark carefully thereon. Pour in a second gallon, and again take the height on the rod, and mark as before; continue to pour in one gallon after another, taking the height of each on the rod until the cooler is full. You then ascertain the number of gallons, separately, which the cooler contains; and to obtain the fractional part of a gallon, not less than quarts, you have only to divide the measurement on the rod, for each gallon, by legible marks, into four equal parts, having that for the half-gallon wider and more distinct than that of the quarts. If the cooler is of greater diameter than that described above, the measurement in gallons will be too close on the rod, and the fractional parts cannot be correctly ascertained.

To carry out the objects explained in the annexed tables, the strictest attention is necessary to the washing, scalding, boiling, and cleansing the vessels; also providing separate vessels for filling new milk, as the same number of meals of milk cannot be kept sweet when a vessel is used in filling or measuring butter-milk, skim-milk, or cream, which is afterwards, though well washed and scalded, used with the former.

Persons having dairies should not allow servants to keep sour-milk; when this is sanctioned, servants get careless and do not observe that attention and cleanliness so necessary in the management of a dairy. Neglect in this way causes considerable loss to the farmer—the cream is not so productive, the butter is not so sweet, and the skim-milk is reduced in value, and sold consequently at a very reduced price.

DAIRY UTENSILS.

These Utensils should be attended to in the following manner:—

The boiler regularly emptied every night, and rubbed with a coarse dry towel, taking care to have it scoured with very fine sand or coarse salt, once a week in winter, twice in warm weather, and three times in very hot weather.

The butter churn, immediately after being used, should be attended to, and boiling water poured into it through a strainer; after remaining a few minutes in this state, it should be emptied and wiped well with a dry towel; once a week in winter, twice in warm weather, and three times in very hot weather; the churn should be scoured as follows:—Take a towel and lay coarse salt on it, rub the inside with it, after which pour some boiling water into the churn through a strainer, and allow it to remain therein for about six minutes; draw off the water then and wipe it dry; when preparing to make butter, and before pouring in the cream, the churn should be rinsed with cold water, except in very cold weather, when boiling water should be used.

The cream tub after being emptied, should be well scoured with fine sand, and then filled with boiling water, and left remain so for about ten minutes; immediately before skimming the cream, the tub should be rinsed with cold spring water, for the purpose of preventing waste by the cream adhering to the side of the tub.

The milk-pans immediately after being emptied should be rinsed and divided into lots of not more than seven; each lot should then be well rubbed in a tub of boiling water with straw twisted hard in the usual way, changing the water four different times, and rubbing them well each turn as you change the water, taking care that every lot should be treated in a similar manner, this being carefully attended to, you then boil the pans as usual.

The milk cans, after being used in summer, should be scoured with fine sand, but in winter it is not necessary to do so more than once each day, say in the morning, and when made use of in the evening, it will be sufficient to wash them in a tub of boiling water, in the same manner as the milk-pans previously described, changing the water only twice, and recollecting that after washing or scouring, they should remain two or three minutes in boiling water.

The milk cooler should be attended to in a similar manner to the milk cans.

Having laid down rules for the management of the Dairy, with instructions for keeping the utensils clean and sweet, I now direct attention to the scale, and the following series of examples, which will enable any person to learn from the simple rules I have drawn up, the value and produce of milk at all seasons throughout the year,—first as to the VALUE OF NEW MILK.

To ascertain the value of one gallon new milk, you must, when making your calculation, take the total of as many weeks as you choose of columns 15, 16 and 17 of the scale, which shows the average produce of a gallon new milk, selecting the season from the scale as near as you can to correspond with the number of meals of milk you are likely to keep sweet; to effect this, you must take into account the usual allowances, wages, &c., to be deducted for the sale of milk and butter, these are as follow;—one pound is taken off every 20lbs butter, as wages, equal to ¼ ounce on every five ounces; 1½d. is allowed on each churn of skim milk, and an allowance of one half gallon as waste; these deductions on the latter are equal to ⅛th of a penny as wages, and one noggin of milk as waste on every 12 pints, or 3 pottles of skim milk; the allowance on butter-milk as wages, is so trifling an item, that it is not necessary more particularly to refer to it, but that allowance will be seen on reference to the examples for working out the details.

EXAMPLE I.

Take the first four weeks' total of columns, 15, 16, and 17 of the scale, which is the exact produce of four gallons of new milk, at the season, when nine meals of milk can be kept sweet. Make your calculation at the present prices of the produce, whatever these might be, as follows—

Suppose the price of Butter to be ....8½d. per lb.
„ average price of Skim-milk to be....2½ pints per 1d.
„ „ „ Butter-milk to be ...4 pints per 1d.

Oz.
Four weeks' total of column 15, Butter..24⅞
Wages at the rate referred to.......... 1¼

Nett produce.........23⅝ at 8½d. per lb. 1 0½

Pts. Nog.
4 weeks' total of column 16, Skim-milk, 28 1
Allowance for waste.... 2⅓

27 2⅔ at 2½ pts. per 1d..11d.
Less wages.. ½d.
10½

Pts. nog.
4 weeks' total of column 17, Butter-milk..2 1½ at 4 pts. per 1d. 0½

The price of four gallons of New Milk...... 1 11½

Or, „ one gallon „ 0 5¾

EXAMPLE II.

Now take four weeks' total of the scale, from the 28th July to 18th of August inclusive, which will show the difference of produce and value of New Milk, at a season when only three meals of milk can be kept sweet.

	Oz.				
4 weeks' total of column 15, Butter......	20⅓				
Wages...............	1				
	19⅓		at 8½d. per lb.		10
	Pts.	nog.			
4 weeks' total of column 16, Skim-milk..	28	2			
Allowance for waste..		2⅓			
	27	3⅔	at 2½ pts. per 1d..11d. Less wages...... ½d.		10½
	Pts.	nog.			
4 weeks' total of column 17, Butter-milk..	2	0½	at 4 pts. per 1d.		0½
The price of four gallons of New Milk..........				1	9
Or, ,, one gallon ,, ...				0	5¼

EXAMPLE III.

Again, for the first 13 weeks of the scale, this will show the Dairy Farmer how to calculate from any portion or part of the scale, by adhering to the proportional allowances as heretofore stated,

	Ounces.				
13 weeks' total of column 15, Butter.	78⅞				
Wages............	3⅞				
	75		at 8½d. per lb.	3	3¾
	Pts.	Nog.			
13 weeks' total of col. 16, Skim-milk..	91	2¼			
Allowance for waste........	1	3½			
	89	2¾	at 2½ pts. per 1d. 2 11⅘ less wages 0 0⅘	2	11
	Pts.	Nog.			
13 weeks' total of col. 17, Butter-milk,	7	2			
Allowance for Wages, &c...	0	2			
	7	0	at 4 pts. 1d.	0	1¾
The price of thirteen Gallons of New Milk..........				6	4½
Or ,, one Gallon ,, ...				0	5⅞

EXAMPLE IV.

The second thirteen weeks' total of the scale, will show the difference of produce between that and the former thirteen weeks—

	Ounces.			
13 weeks' total of column 15, Butter..	68⅚			
Wages	3⅚			
	65	at 8½d. per lb.	2	10½
	Pts.			
13 weeks' total col. 16, Skim-milk...	93			
Allowance for waste,......	2			
	91	at 2½ pts per 1d. .. 3 0½d.		
		less Wages .. 0 1	2	11½
	Pts. Nog.			
13 weeks' total of col. 17, Butter-milk.	6 2¼			
Less allowance for Wages, &c.,..	0 2¼			
	6 0	at 4 pts. per 1d.	0	1½
The price of thirteen Gallons of New Milk			5	11½
Or „ one Gallon „			0	5½

EXAMPLE V.

First twenty-six weeks' total of the scale, averages as follows—

	Ounces.			
26 weeks' total of column 15, Butter....	147⅔			
Wages..............	7⅔			
	140	at 8½d per lb.	6	2¼
	Pts. nog.			
26 weeks' total of column 16, Skim-milk	184 2¼			
Allowance for waste..	4 0			
	180 2	at 2½ pts. per 1d..6 0d.		
		Less wages......0 2	5	10
	Pts. nog.			
26 weeks' total of column 17, Butter-milk	14 0¼			
Less allowance for wages, &c..	1 0¼			
	13 0	at 4 pts. per 1d.		3¼
The price of twenty-six gallons of New Milk..			12	3½
Or, „ one gallon „ ..			0	5⅔

EXAMPLE VI.

Second twenty-six weeks' total of the scale, averages as follows—

	Ounces.			
26 weeks' total of column 15, Butter......	172⅓			
Wages..............	9⅓			
	163	at 8½d. per lb.		7 2½
	Pts. nog.			
26 weeks' total of column 16, Skim-milk	181 1⅙			
Allowance for waste....	4 1⅙			
	177 0	at 2½ pts. per 1d..	5 10½d.	
		Less wages......	0 2	
				5 8½
	Pts. nog.			
26 weeks' total of column 17, Butter-milk	17 0⅖			
Less allowance for wages, &c....	1 0⅖			
	16 0	at 4 pts. per 1d.		4
The price of twenty-six gallons of New Milk....				13 3
Or, ,, one gallon ,, ...				0 6⅑

PRODUCE OF NEW MILK.

Having disposed of the subject relating to the value of New Milk, I now turn to the produce, and will show with equal certainty, how that produce is to be ascertained, and with that view, I have prepared a Dairy Account, for the purpose of working out the details.

The next page will show the Farmer the form of a Dairy Account, and the example underneath, will enable him to calculate the quantity of Cream, Butter, Skim-Milk, and Butter-Milk, which any given quantity of New Milk should produce, at a season when nine meals of Milk can be kept sweet; the table is struck on a suppositious scale of 350 gallons, but the produce on a greater or lesser quantity, will be ascertained with equal correctness, by referring to the scale as already laid down, in accordance with the number of meals of Milk kept sweet at the different seasons of the year.

EXAMPLE.

				Gals.	Pts.	
The first 4 weeks' total of column	5	in the scale	New Milk ...	323	2	
,, ,, ,,	6	,,	Cream	36	7	
,, ,, ,,	7	,,	Skim-milk, ..	285	1	
,, ,, ,,	8	,,	Butter-milk..	24	1	lbs.
,, ,, ,,	9	,,	Butter			125½

Gals. Pts. Gals. Pts. Gals. Pts.
As 323 2 of New Milk produced 36 7 Cream,
350 should produce 39 7 Cream.
As 323 2 of New Milk produced 285 1 Skim-milk,
350 should produce 308 5 Skim-milk.
As 323 2 of New Milk produced 24 1 Butter-milk,
350 should produce 26 1 Butter-milk.
As 323 2 of New Milk produced 125½lbs. Butter,
350 should produce 136lbs. Butter.

DAIRY PRODUCE.

Date.	Skim-Milk.		Cream.		Butter-Milk.		Print Butter.	Firkin Butter	For Domestic Purposes.						Quality of Milk.	Number of Meals.	Description of Food.
									Skim-Milk.		Cream.	Butter-Milk.		Butter.			
	pots.	pts	gals.	pts	pots.	pts.	lbs.	ct. qr. lb	gal.	pts.	pts.	gal.	pts.	lb			
	80	1	0	0	0	0	0	..	3	0	..	0	0	0	Sweet	Nine.	..
	80	1	13	0	15	0	43½	..	3	1	..	1	0	1	..	..	..
	80	1	0	0	0	0	0	..	3	3	..	0	0	0	..	..	..
	80	1	0	0	0	0	0	..	4	0	..	0	0	0	..	..	..
	40	2	13	0	15	0	43½	..	3	4	..	1	0	1	..	..	..
	80	1	0	0	0	0	0	..	2	7	..	0	0	0	..	..	..
	80	1	0	0	0	0	0	..	2	6	..	0	0	0	..	..	..
	44	0	13	7	16	1	46	..	3	0	..	1	0	1	..	..	..
Pottles.	566	0	39	7	46	1	133		25	5		3	0	3			
Or, Gallons.	283	0			23	1	0	..			...				..	..	..
Sundry uses.	25	5			3	0	3										
	308	5			26	1	136										

NEW MILK ACCOUNT.

Date.	Morning.		Evening.		Total.		Total of Milk closed.		Date.	Morning.		Evening.		Total.		Total of Milk closed.	
	gals.	pts.	gals.	pts.	gals.	pts.	gals.	pts		gals.	pts.	gals.	pts.	gals.	pts.	gals.	pts.
	29	4	20	4	50	0	..			..		..		..		..	
	29	0	20	4	49	4	..			..		..		..		..	
	29	4	21	0	50	4	..			..		..		..		..	
	30	0	20	0	50	0	..			..		..		..		..	
	30	0	20	0	50	0	..			..		..		..		..	
	29	4	20	0	49	4	..			..		..		..		..	
	30	0	20	4	50	4	350	0		..		..		..		..	

I would here premise that, during winter, owing to the different descriptions of food on which Cattle are fed, the produce of Dairies generally might not agree with the scale I have prepared, and as I have had no opportunity of testing this difference of produce, (which only effects butter) supposing that difference to average one half ounce, it would not cause a greater variance than one farthing on every gallon of new milk.

It will be seen by the scale that the produce increases according to the number of meals of milk kept sweet, more than by a change of food, clearly showing the necessity of adhering strictly to the directions already given with regard to the proper cleansing of the dairy utensils.

Should any apparent difference be manifest between Dairy returns, and the scale I have prepared, the best way to obviate this seeming difficulty, would be by employing a confidential person to attend to the Dairy; this person should measure the milk carefully for one week, keep a correct return of the produce, and by comparing it with the scale, the amount of difference will be seen.

Care, however, should be taken, that no deleterious matter has been mixed with the milk for the purpose of injuring the produce. As to the summer months, I do not apprehend that there will be any difference in the produce; at all events, it must be trifling, as the Cattle at this season are generally fed on grass.

SCALE.

	1.	2.	3.	4.	5.		6.	
	Week Ending.	Description of Food.	No. of Meals of Milk.	Quality of Skim Milk.	Quantity of New Milk.		Cream taken off.	
					Gals.	Pts.	Gals.	Pts
	1843.							
	March 31	Grains, Wash, Hay, & Grass.	10	Sweet	273	2	31	3
	April 7	,,	9	,,	308	3	33	7
	14	,,	9	,,	343	1	40	4
	21	,,	8	,,	368	2	41	7
Four Weeks' Total, ...					1293	0	147	5
,, ,, Average....			9	,,	323	2	36	7
	28	,,	8	,,	362	0	42	2
	May 5	Soil & Grass	7	,,	377	1	41	1
	12	,,	6	,,	398	1	44	2
	19	,,	6	,,	445	2	52	2
Four Weeks' Total, ...					1582	4	179	7
,, ,, Average....			7	,,	395	5	45	0
	26	,,	6	,,	451	0	51	4
	June 2	,,	7	,,	447	0	55	2
	9	,,	6	,,	434	0	53	6
	16	,,	4	,,	427	0	51	0
	23	,,	3	,,	402	2	40	6
Five Weeks' Total, ...					2161	2	252	2
,, ,, Average,....			5	,,	432	2	50	3½
Thirteen Weeks' Total,....					5036	6	579	6
,, ,, Average..					387	3½	44	4¾

7.		8.		9.	10.		11.	12.		13.	14.	15.	16.		17.
Skim Milk Remaining.		Butter Milk Remaining.		Quantity of Butter.	Average of New Milk for 1lb Butter.		Average of Cream for 1lb Butter	Average of Skim Milk after 1 lb Butter.		Average of Butter Milk after 1 lb Butter	Average of Cream off each Gallon New Milk.	Average of Butter from One Gallon New Milk.	Average of Skim Milk from One Gallon New Milk.		Average of Butter Milk from One Gallon New Milk.
Gals.	Pts.	Gals.	Pts.	lbs.	Gals.	Pts.	Pints.	Gals.	Pts	Pints.	Nogs.	Oz.	Pts.	Nog.	Noggins.
241	3	19	4	111	2	$3\frac{3}{4}$	$2\frac{1}{4}$	2	$1\frac{2}{5}$	$1\frac{2}{5}$	$3\frac{2}{3}$	$6\frac{1}{2}$	7	$0\frac{1}{4}$	$2\frac{1}{3}$
273	0	20	4	118	2	5	$2\frac{2}{7}$	2	$2\frac{1}{2}$	$1\frac{3}{8}$	$3\frac{1}{2}$	$6\frac{1}{8}$	7	$0\frac{1}{3}$	$2\frac{1}{8}$
301	7	31	0	134	2	$4\frac{1}{2}$	$2\frac{2}{5}$	2	2	$1\frac{5}{6}$	$3\frac{3}{4}$	$6\frac{1}{4}$	7	$0\frac{1}{7}$	$2\frac{8}{9}$
324	3	25	4	$139\frac{1}{2}$	2	$5\frac{1}{9}$	$2\frac{2}{5}$	2	$2\frac{3}{5}$	$1\frac{1}{2}$	$3\frac{2}{3}$	6	7	$0\frac{1}{5}$	$2\frac{1}{5}$
1140	5	96	4	$502\frac{1}{2}$	10	$2\frac{1}{3}$	$9\frac{1}{3}$	9	$0\frac{1}{2}$	$6\frac{1}{8}$	$14\frac{1}{2}$	$24\frac{7}{8}$	28	1	$9\frac{1}{2}$
285	1	24	1	$125\frac{1}{2}$	2	$4\frac{1}{2}$	$2\frac{1}{3}$	2	$2\frac{1}{8}$	$1\frac{1}{2}$	$3\frac{5}{8}$	$6\frac{1}{4}$	7	$0\frac{1}{4}$	$2\frac{1}{2}$
314	5	24	4	143	2	$4\frac{1}{4}$	$2\frac{1}{3}$	2	$1\frac{3}{5}$	$1\frac{1}{3}$	$3\frac{2}{3}$	$6\frac{1}{3}$	7	0	$2\frac{1}{6}$
332	6	23	0	134	2	$6\frac{1}{2}$	$2\frac{1}{2}$	2	$3\frac{5}{6}$	$1\frac{1}{3}$	$3\frac{1}{2}$	$5\frac{2}{3}$	7	$0\frac{1}{4}$	2
352	5	28	0	$144\frac{1}{2}$	2	6	$2\frac{1}{2}$	2	$3\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{1}{2}$	$5\frac{5}{6}$	7	$0\frac{1}{3}$	$2\frac{1}{4}$
391	4	33	0	167	2	$5\frac{1}{3}$	$2\frac{1}{2}$	2	$2\frac{3}{4}$	$1\frac{3}{5}$	$3\frac{3}{4}$	6	7	$0\frac{1}{7}$	$2\frac{1}{3}$
1391	4	108	4	$588\frac{1}{2}$	10	6	10	9	4	6	$14\frac{1}{2}$	24	28	$0\frac{3}{4}$	$8\frac{3}{4}$
347	7	27	1	147	2	$5\frac{1}{2}$	$2\frac{1}{2}$	2	3	$1\frac{1}{2}$	$3\frac{5}{8}$	6	7	$0\frac{1}{4}$	$2\frac{1}{4}$
398	0	29	4	172	2	5	$2\frac{2}{5}$	2	$2\frac{1}{2}$	$1\frac{1}{3}$	$3\frac{2}{3}$	$6\frac{1}{10}$	7	$0\frac{2}{9}$	2
390	0	31	4	$170\frac{1}{2}$	2	5	$2\frac{3}{5}$	2	$2\frac{3}{10}$	$1\frac{1}{2}$	4	$6\frac{1}{10}$	6	$3\frac{8}{9}$	$2\frac{1}{4}$
378	2	37	4	171	2	$4\frac{1}{3}$	$2\frac{1}{2}$	2	$1\frac{2}{3}$	$1\frac{3}{4}$	4	$6\frac{1}{4}$	6	$3\frac{3}{4}$	$2\frac{3}{4}$
373	0	35	0	164	2	$4\frac{5}{6}$	$2\frac{1}{2}$	2	$2\frac{1}{5}$	$1\frac{3}{4}$	$3\frac{5}{6}$	$6\frac{1}{7}$	7	0	$2\frac{3}{8}$
359	4	27	0	$138\frac{1}{2}$	2	$7\frac{1}{4}$	$2\frac{1}{3}$	2	$4\frac{2}{3}$	$1\frac{1}{2}$	$3\frac{1}{4}$	$5\frac{1}{2}$	7	$0\frac{3}{5}$	$2\frac{1}{8}$
1898	6	160	4	816	13	$2\frac{1}{2}$	$12\frac{1}{3}$	11	$5\frac{1}{3}$	8	$18\frac{3}{4}$	30	35	$0\frac{1}{2}$	$11\frac{3}{4}$
379	6	32	1	$163\frac{1}{5}$	2	$5\frac{1}{4}$	$2\frac{1}{2}$	2	$2\frac{2}{3}$	$1\frac{3}{5}$	$3\frac{3}{4}$	6	7	$0\frac{1}{8}$	$2\frac{1}{3}$
4430	7	365	4	1907	34	3	$31\frac{1}{2}$	30	$1\frac{5}{6}$	20	$47\frac{3}{4}$	$78\frac{7}{8}$	91	$2\frac{1}{4}$	30
340	$6\frac{3}{4}$	28	1	$146\frac{3}{4}$	2	$5\frac{1}{6}$	$2\frac{1}{2}$	2	$2\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{3}{4}$	6	7	$0\frac{1}{8}$	$2\frac{1}{3}$

	1.	2.	3.	4.	5.		6.		
	Week Ending.	Description of Food.	No. of Meals of Milk.	Quality of Skim Milk.	Quantity of New Milk.		Cream taken off.		Sk Re
	1843.				Gals.	Pts.	Gals.	Pts	Ga
	June 30,	Wash, Soil, and Grass	3	Sweet	429	3	45	2	3
	July 7,	,, Grs.&Grass	3	,,	471	2	50	4	4
	14,	,,	4	,,	484	5	52	4	4
	21,	Wash & Grass	3	,,	432	0	43	3	3
Four Weeks' Total,......					1817	2	191	5	16
,, ,, Average,....			3	,,	454	2½	47	7	4
	28,	,,	3	,,	420	6	42	6	3
	Aug. 4,	,,	3	,,	370	0	39	4	3
	11,	Grass only,	3	,,	332	4	35	7	2
	18,	,,	3	,,	318	1	33	2	2
Four Weeks' Total,......					1441	3	151	3	12
,, ,, Average,....			3	,,	360	2¾	37	6¾	3
	25,	,,	3	,,	351	1	34	1	3
	Sept. 1,	,,	3	,,	342	7	35	0	3
	8,	,,	2 & 3	,,	347	3	29	7	3
	15,	,,	3	,,	341	0	32	4	3
	22,	,,	3	,,	318	2	31	0	2
Five Weeks' Total, ...					1700	5	162	4	15
,, ,, Average,....			3	,,	340	1	32	4	3
Thirteen Weeks' Total....					4959	2	505	4	44
,, ,, Average..					381	4	38	7	3
Twenty-six Weeks' Total..					9996	0	1085	2	88
,, ,, Average					384	3⅔	41	6	3

.	7.		8.		9.	10.		11.	12.		13.	14.	15.	16.		17.
m off.	Skim Milk Remaining.		Butter Milk Remaining.		Quantity of Butter.	Average of New Milk for 1 lb Butter.		Average of Cream for 1lb Butter	Average of Skim Milk after 1 lb Butter.		Average of Butter Milk after 1 lb Butter	Average of Cream off each Gallon New Milk.	Average of Butter from One Gallon New Milk	Average of Skim Milk from One Gallon New Milk.		Average of Butter Milk from 1 Gal. New Milk.
Pts.	Gals.	Pts.	Gals.	Pts.	lbs.	Gals.	Pts.	Pints.	Gals.	Pts.	Pints.	Nogs.	Oz.	Pts.	Nog.	Nogs.
2	382	0	26	-4	150	2	7	$2\frac{2}{5}$	2	$4\frac{1}{3}$	$1\frac{1}{3}$	$3\frac{1}{3}$	$5\frac{5}{8}$	7	$0\frac{1}{2}$	2
4	420	1	30	0	166	2	$6\frac{2}{3}$	$2\frac{3}{7}$	2	$4\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{1}{2}$	$5\frac{5}{8}$	7	$0\frac{1}{2}$	2
4	430	0	31	0	164	2	$7\frac{5}{8}$	$2\frac{1}{2}$	2	5	$1\frac{1}{2}$	$3\frac{4}{9}$	$5\frac{4}{9}$	7	$0\frac{2}{5}$	2
3	387	0	25	0	141	3	$0\frac{1}{2}$	$2\frac{1}{2}$	2	6	$1\frac{1}{3}$	$3\frac{1}{5}$	$5\frac{2}{9}$	7	$0\frac{2}{3}$	$1\frac{3}{4}$
5	1619	1	112	4	621	11	$5\frac{3}{4}$	10	10	$3\frac{1}{2}$	$5\frac{2}{3}$	$13\frac{1}{2}$	22	28	2	$7\frac{3}{4}$
7	404	6	28	1	$155\frac{1}{4}$	2	$7\frac{1}{2}$	$2\frac{1}{2}$	2	5	$1\frac{1}{2}$	$3\frac{1}{3}$	$5\frac{1}{2}$	7	$0\frac{1}{2}$	2
6	375	6	27	4	124	3	$3\frac{1}{7}$	$2\frac{3}{4}$	3	$0\frac{1}{5}$	$1\frac{3}{4}$	$3\frac{1}{4}$	$4\frac{3}{4}$	7	$0\frac{3}{5}$	2
4	329	0	23	0	117	3	$1\frac{1}{4}$	$2\frac{2}{3}$	2	$6\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{3}{7}$	5	7	$0\frac{1}{2}$	2
7	295	4	25	0	108	3	$0\frac{2}{3}$	$2\frac{2}{3}$	2	6	$1\frac{4}{5}$	$3\frac{4}{9}$	$5\frac{1}{5}$	7	$0\frac{2}{5}$	$2\frac{2}{5}$
2	284	2	22	4	108	2	$7\frac{1}{2}$	$2\frac{1}{2}$	2	5	$1\frac{2}{3}$	$3\frac{1}{3}$	$5\frac{3}{7}$	7	$0\frac{3}{5}$	$2\frac{1}{4}$
3	1284	4	98	0	457	12	$4\frac{1}{2}$	$10\frac{1}{2}$	11	$1\frac{3}{4}$	$6\frac{3}{4}$	$13\frac{1}{2}$	$20\frac{1}{3}$	28	2	$8\frac{1}{2}$
$6\frac{3}{4}$	321	1	24	4	$114\frac{1}{4}$	3	1	$2\frac{1}{2}$	2	$6\frac{1}{2}$	$1\frac{3}{4}$	$3\frac{1}{3}$	$5\frac{1}{12}$	7	$0\frac{1}{2}$	$2\frac{1}{8}$
1	315	7	20	4	124	2	$6\frac{2}{3}$	$2\frac{1}{3}$	2	$4\frac{1}{3}$	$1\frac{1}{3}$	$3\frac{1}{9}$	$5\frac{2}{3}$	7	$0\frac{4}{5}$	$1\frac{6}{7}$
0	306	7	23	0	121	2	$6\frac{2}{3}$	$2\frac{1}{3}$	2	$4\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{1}{4}$	$5\frac{2}{3}$	7	$0\frac{3}{5}$	$2\frac{1}{7}$
7	316	1	18	0	$111\frac{1}{2}$	3	$0\frac{4}{5}$	$2\frac{1}{7}$	2	$6\frac{2}{3}$	$1\frac{2}{7}$	$2\frac{4}{5}$	$5\frac{1}{7}$	7	$1\frac{1}{8}$	$1\frac{2}{3}$
4	307	2	22	4	$111\frac{1}{2}$	3	$0\frac{1}{2}$	$2\frac{1}{3}$	2	6	$1\frac{4}{7}$	$3\frac{1}{20}$	$5\frac{4}{17}$	7	$0\frac{4}{5}$	$2\frac{1}{9}$
0	286	2	20	4	103	3	$0\frac{3}{4}$	$2\frac{2}{5}$	2	$6\frac{1}{4}$	$1\frac{3}{5}$	$3\frac{2}{17}$	$5\frac{2}{11}$	7	$0\frac{3}{4}$	2
4	1532	3	104	4	571	14	$7\frac{1}{3}$	$11\frac{2}{5}$	13	$3\frac{1}{2}$	$7\frac{3}{7}$	$15\frac{1}{3}$	$26\frac{1}{2}$	36	0	10
4	306	4	20	$7\frac{1}{5}$	$114\frac{1}{5}$	3	0	$2\frac{1}{4}$	2	$5\frac{1}{2}$	$1\frac{1}{2}$	3	$5\frac{1}{3}$	7	$0\frac{4}{5}$	2
4	4436	0	315	0	1649	39	$1\frac{1}{2}$	32	35	$0\frac{3}{4}$	20	$42\frac{1}{3}$	$68\frac{5}{6}$	93	0	$26\frac{1}{4}$
7	341	2	24	2	$126\frac{11}{13}$	3	0	$2\frac{1}{2}$	2	$5\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{1}{4}$	$5\frac{1}{3}$	7	$0\frac{2}{3}$	2
2	8866	7	680	4	3556	73	$4\frac{1}{2}$	$63\frac{1}{2}$	65	$2\frac{1}{2}$	40	90	$147\frac{2}{3}$	184	$2\frac{1}{4}$	$56\frac{1}{4}$
6	341	$0\frac{1}{4}$	26	$1\frac{2}{5}$	$136\frac{4}{5}$	2	$6\frac{1}{2}$	$2\frac{1}{2}$	2	4	$1\frac{1}{2}$	$3\frac{1}{2}$	$5\frac{2}{3}$	7	$0\frac{2}{5}$	$2\frac{1}{6}$

	1. Week Ending.	2. Description of Food.	3. No. of Meals of Milk.	4. Quality of Skim Milk.	5. Quantity of New Milk.		6. Cream taken off.	
					Gals.	Pts.	Gals.	Pts.
	1843.							
	Sept. 29	Grass only	3 & 4	Sweet	306	2	32	5
	Oct. 6	,,	3	,,	296	0	27	7
	13	,,	5	,,	262	2	31	2
	20	,,	5 & 6	,,	219	2	29	2
Four Weeks' Total, ……					1083	6	121	0
,, ,, Average ….			4	,,	270	7½	30	2
	27	Grass & Wash	6	,,	205	3	27	0
	Nov. 3	,,	7 & 8	,,	198	3	26	3
	10	,,	7 & 8	,,	202	1	27	4
	17	,,	7 & 8	,,	189	2	25	5
Four Weeks' Total, ……					795	1	106	4
,, ,, Average ….			7	,,	198	6	26	5
	24	,,	7 & 8	,,	153	4	21	5
	Dec. 1	,,	7 & 8	,,	143	0	18	2
	8	,,	7 & 8	,,	118	6	16	1
Three Weeks' Total, ……					415	2	56	0
,, ,, Average, …			7 & 8	,,	138	3⅓	18	5
	15	Grains, Wash, Hay, & Grass.	7 & 8	,,	142	4	18	4
	22	,,	6	,,	142	0	16	1
	29	,,	6	,,	145	4	16	7
Three Weeks' Total, ……					430	0	51	4
,, ,, Average, ….			6 & 7	,,	143	3	17	1½
Fourteen Weeks' Total. …					2724	1	335	0
,, ,, Average . .					194	4½	24	0

.	7.		8.		9.	10.		11.	12.		13.	14.	15.	16.		17.
am n off.	Skim Milk Remaining.		Butter Milk Remaining.		Quantity of Butter.	Average of New Milk for 1lb Butter.		Average of Cream for 1lb Butter	Average of Skim Milk after 1 lb Butter.		Average of Butter Milk after 1 lb Butter	Average of Cream off each Gallon New Milk.	Average of Butter from One Gallon New Milk.	Average of Skim Milk from One Gallon New Milk.		Average of Butter Milk from One Gallon New Milk.
Pts	Gals.	Pts.	Gals.	Pts.	lbs.	Gals.	Pts.	Pints.	Gals.	Pts.	Pints.	Nogs.	Oz.	Pts.	Nog.	Noggins.
5	272	6	21	0	$110\frac{1}{2}$	2	$6\frac{1}{8}$	$2\frac{4}{11}$	2	$3\frac{8}{11}$	$1\frac{1}{2}$	$3\frac{2}{5}$	$5\frac{3}{4}$	7	$0\frac{1}{2}$	$2\frac{1}{5}$
7	267	3	17	4	$97\frac{1}{2}$	3	$0\frac{1}{4}$	$2\frac{2}{7}$	2	6	$1\frac{2}{5}$	3	$5\frac{4}{15}$	7	$0\frac{9}{10}$	2
2	230	1	19	0	$100\frac{1}{2}$	2	$4\frac{7}{8}$	$2\frac{1}{2}$	2	$2\frac{1}{3}$	$1\frac{1}{2}$	$3\frac{5}{7}$	$6\frac{2}{15}$	7	$0\frac{2}{25}$	$2\frac{1}{3}$
2	189	4	18	0	90	2	$3\frac{1}{2}$	$2\frac{3}{5}$	2	$0\frac{5}{6}$	$1\frac{2}{3}$	$4\frac{1}{4}$	$6\frac{5}{9}$	6	$3\frac{2}{3}$	$2\frac{2}{3}$
0	959	6	75	4	$398\frac{1}{2}$	10	$6\frac{3}{4}$	$9\frac{3}{4}$	9	5	6	$14\frac{1}{2}$	$23\frac{2}{3}$	28	$1\frac{1}{7}$	$9\frac{1}{5}$
2	239	$7\frac{1}{2}$	18	7	$99\frac{1}{2}$	2	$5\frac{3}{4}$	$2\frac{1}{2}$	2	$3\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{5}{8}$	6	7	$0\frac{1}{3}$	$2\frac{1}{4}$
0	177	6	18	0	83	2	$3\frac{3}{4}$	$2\frac{5}{8}$	2	$1\frac{1}{8}$	$1\frac{3}{4}$	$4\frac{1}{5}$	$6\frac{1}{2}$	6	$3\frac{2}{3}$	$2\frac{3}{4}$
3	171	3	17	4	79	2	$4\frac{1}{11}$	$2\frac{2}{3}$	2	$1\frac{1}{3}$	$1\frac{4}{5}$	$4\frac{2}{7}$	$6\frac{2}{5}$	6	$3\frac{4}{5}$	$2\frac{4}{5}$
4	174	2	18	0	86	2	$2\frac{3}{4}$	$2\frac{4}{7}$	2	$0\frac{1}{5}$	$1\frac{2}{3}$	$4\frac{3}{8}$	$6\frac{4}{5}$	6	$3\frac{3}{5}$	$2\frac{4}{5}$
5	162	0	16	4	$77\frac{1}{2}$	2	$3\frac{1}{2}$	$2\frac{2}{3}$	2	$0\frac{2}{5}$	$1\frac{2}{3}$	$4\frac{1}{3}$	$6\frac{4}{7}$	6	$3\frac{2}{5}$	$2\frac{4}{5}$
4	685	3	70	0	$325\frac{1}{2}$	9	6	$10\frac{1}{2}$	8	$3\frac{1}{3}$	7	$17\frac{1}{6}$	$26\frac{2}{7}$	27	$2\frac{5}{8}$	11
5	171	$2\frac{3}{4}$	17	4	$81\frac{1}{2}$	2	$3\frac{1}{2}$	$2\frac{5}{8}$	2	$0\frac{5}{6}$	$1\frac{3}{4}$	$4\frac{1}{4}$	$6\frac{1}{2}$	6	$3\frac{5}{8}$	$2\frac{3}{4}$
5	131	4	15	0	68	2	2	$2\frac{6}{11}$	1	$7\frac{1}{2}$	$1\frac{3}{4}$	$4\frac{1}{2}$	$7\frac{1}{12}$	6	$3\frac{2}{5}$	$3\frac{1}{8}$
2	124	2	13	0	58	2	$3\frac{3}{4}$	$2\frac{1}{2}$	2	$1\frac{1}{7}$	$1\frac{3}{4}$	$4\frac{1}{12}$	$6\frac{1}{2}$	6	$3\frac{4}{5}$	$2\frac{6}{7}$
1	102	0	11	0	$54\frac{1}{2}$	2	$1\frac{3}{7}$	$2\frac{4}{11}$	1	7	$1\frac{2}{3}$	$4\frac{1}{3}$	$7\frac{1}{3}$	6	$3\frac{1}{2}$	3
0	357	6	39	0	$180\frac{1}{2}$	6	$7\frac{1}{6}$	$7\frac{1}{2}$	5	$7\frac{3}{4}$	5	13	21	20	$2\frac{1}{2}$	9
5	119	2	13	0	$60\frac{1}{6}$	2	$2\frac{1}{3}$	$2\frac{1}{2}$	2	0	$1\frac{2}{3}$	$4\frac{1}{3}$	7	6	$3\frac{1}{2}$	3
4	123	4	12	0	64	2	$1\frac{4}{5}$	$2\frac{1}{3}$	1	$7\frac{4}{9}$	$1\frac{1}{2}$	$4\frac{2}{13}$	$7\frac{1}{5}$	6	$3\frac{3}{4}$	$2\frac{9}{13}$
1	125	4	11	0	57	2	4	$2\frac{1}{4}$	2	$1\frac{3}{5}$	$1\frac{4}{7}$	$3\frac{4}{7}$	$6\frac{3}{7}$	7	$0\frac{1}{7}$	$2\frac{1}{2}$
7	128	2	11	0	$57\frac{1}{2}$	2	$4\frac{1}{4}$	$2\frac{1}{3}$	2	$1\frac{5}{6}$	$1\frac{1}{2}$	$3\frac{5}{7}$	$6\frac{2}{3}$	7	$0\frac{2}{5}$	$2\frac{2}{5}$
4	377	2	34	0	$178\frac{1}{2}$	7	2	7	6	$2\frac{8}{9}$	$4\frac{4}{7}$	$11\frac{1}{2}$	$20\frac{1}{4}$	21	$0\frac{1}{6}$	$7\frac{3}{5}$
1	125	6	11	$2\frac{2}{3}$	$59\frac{1}{2}$	2	$3\frac{1}{3}$	$2\frac{1}{3}$	2	1	$1\frac{1}{2}$	$3\frac{5}{6}$	$6\frac{3}{4}$	7	0	$2\frac{3}{5}$
0	2380	1	218	4	1083	34	6	$34\frac{3}{4}$	30	3	$22\frac{1}{2}$	$56\frac{1}{6}$	$91\frac{1}{5}$	97	$2\frac{3}{7}$	$36\frac{4}{5}$
0	170	0	15	$4\frac{1}{2}$	$77\frac{1}{3}$	2	4	$2\frac{1}{2}$	2	$1\frac{1}{2}$	$1\frac{3}{5}$	4	$6\frac{1}{2}$	6	$7\frac{3}{4}$	$2\frac{3}{4}$

	1.	2.	3.	4.	5.		6.	
	Week Ending.	Description of Food.	No. of Meals of Milk.	Quality of Skim Milk.	Quantity of New Milk.		Cream taken off.	
	1844.				Gals.	Pts.	Gals.	Pts.
	Jan. 5,	Grains, Wash, Hay, & Grass.	7 & 8	Sweet	140	2	17	0
	12,	,,	7 & 8	,,	140	6	18	0
	19,	,,	9	,,	167	4	22	2
	26,	,,	9	,,	174	0	22	6
Four Weeks' Total,......					622	4	80	0
,, ,, Average,....			8	,,	155	5	20	0
	Feb. 2,	,,	9	,,	213	0	26	2
	9,	,,	9	,,	260	4	30	6
	16,	,,	9	,,	252	2	31	0
	23,	,,	9	,,	233	2	30	6
Four Weeks' Total,......					959	0	118	6
,, ,, Average,....			9	,,	239	6	29	$5\frac{1}{2}$
	March 1,	,,	9	,,	213	2	26	6
	8,	,,	9	,,	221	0	28	0
	15,	,,	9	,,	198	2	25	5
	24,	,,	9	,,	232	0	29	2
Four Weeks' Total,......					864	4	109	5
,, ,, Average,....			9	,,	216	1	27	$3\frac{1}{4}$
Twelve Weeks' Total					2446	0	308	3
,, ,, Average..					203	$6\frac{3}{4}$	25	$5\frac{7}{12}$
Twenty-six Weeks' Total..					5170	1	643	3
,, ,, Average					198	7	24	6

7.		8.		9.	10.		11.	12.		13.	14.	15.	16.		17.
Skim Milk Remaining.		Butter Milk Remaining.		Quantity of Butter.	Average of New Milk for 1lb Butter.		Average of Cream for 1lb Butter	Average of Skim Milk after 1lb Butter.		Average of Butter Milk after 1lb Butter	Average of Cream off each Gallon New Milk.	Average of Butter from One Gallon New Milk.	Average of Skim Milk from One Gallon New Milk.		Average of Butter Milk from 1Gal. New Milk.
Gals.	Pts.	Gals.	Pts.	lbs.	Gals.	Pts.	Pints.	Gals.	Pts.	Pints.	Nogs.	Oz.	Pts.	Nog.	Nogs.
123	0	12	0	58	2	$3\frac{1}{3}$	$2\frac{1}{3}$	2	1	$1\frac{2}{3}$	$3\frac{7}{8}$	$6\frac{5}{8}$	7	$0\frac{1}{16}$	$2\frac{3}{4}$
122	4	11	4	59	2	$3\frac{1}{12}$	$2\frac{3}{7}$	2	$0\frac{3}{5}$	$1\frac{3}{5}$	$4\frac{1}{11}$	$6\frac{7}{10}$	6	$3\frac{9}{10}$	$2\frac{3}{5}$
145	0	15	4	74	2	$2\frac{1}{9}$	$2\frac{2}{5}$	1	$7\frac{2}{3}$	$1\frac{2}{3}$	$4\frac{1}{4}$	$7\frac{1}{14}$	6	$3\frac{2}{3}$	3
150	4	16	0	75	2	$2\frac{3}{5}$	$2\frac{4}{9}$	2	0	$1\frac{2}{3}$	$4\frac{2}{11}$	$6\frac{9}{14}$	6	$3\frac{2}{3}$	3
541	0	55	0	266	9	$3\frac{1}{8}$	$9\frac{1}{2}$	8	$1\frac{1}{4}$	$6\frac{3}{5}$	$16\frac{2}{5}$	$27\frac{1}{3}$	27	$3\frac{1}{4}$	$11\frac{1}{4}$
135	2	13	6	$66\frac{1}{2}$	2	$2\frac{3}{4}$	$2\frac{3}{8}$	2	$0\frac{1}{4}$	$1\frac{5}{8}$	$4\frac{1}{10}$	$6\frac{5}{6}$	6	$3\frac{3}{4}$	$2\frac{3}{4}$
186	2	18	0	$90\frac{1}{2}$	2	$2\frac{5}{6}$	$2\frac{1}{3}$	2	$0\frac{7}{12}$	$1\frac{7}{12}$	$3\frac{16}{17}$	$6\frac{4}{5}$	7	0	$2\frac{3}{4}$
229	2	20	4	110	2	3	$2\frac{1}{4}$	2	$0\frac{7}{11}$	$1\frac{1}{2}$	$3\frac{10}{13}$	$6\frac{3}{4}$	7	$0\frac{1}{6}$	$2\frac{1}{2}$
221	0	18	0	$105\frac{1}{2}$	2	$3\frac{1}{8}$	$2\frac{3}{8}$	2	$0\frac{4}{5}$	$1\frac{3}{8}$	$3\frac{9}{10}$	$6\frac{7}{10}$	7	0	$2\frac{1}{4}$
202	2	19	4	$99\frac{1}{2}$	2	$2\frac{3}{4}$	$2\frac{1}{2}$	2	$0\frac{1}{4}$	$1\frac{3}{5}$	$4\frac{2}{9}$	$6\frac{7}{8}$	6	$3\frac{3}{4}$	$2\frac{2}{3}$
838	6	76	0	$405\frac{1}{2}$	9	$3\frac{2}{3}$	$9\frac{1}{2}$	8	$2\frac{1}{7}$	6	$15\frac{3}{4}$	$27\frac{1}{8}$	28	0	10
209	$5\frac{1}{2}$	19	0	$101\frac{3}{8}$	2	$2\frac{7}{8}$	$2\frac{3}{8}$	2	$0\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{15}{16}$	$6\frac{3}{4}$	7	0	$2\frac{1}{2}$
186	2	16	4	$87\frac{1}{2}$	2	$3\frac{1}{2}$	$2\frac{3}{7}$	2	1	$1\frac{1}{2}$	4	$6\frac{4}{7}$	6	$3\frac{16}{17}$	$2\frac{8}{17}$
192	4	18	0	$91\frac{1}{2}$	2	$3\frac{2}{7}$	$2\frac{4}{9}$	2	$0\frac{5}{6}$	$1\frac{4}{7}$	4	$6\frac{2}{3}$	7	0	$2\frac{2}{3}$
172	2	17	0	$82\frac{1}{2}$	2	$3\frac{2}{9}$	$2\frac{1}{2}$	2	$0\frac{2}{3}$	$1\frac{2}{3}$	$4\frac{2}{16}$	$6\frac{2}{3}$	6	$3\frac{4}{5}$	$2\frac{5}{7}$
202	0	19	0	97	2	$3\frac{1}{8}$	$2\frac{2}{5}$	2	$0\frac{1}{3}$	$1\frac{5}{9}$	4	$6\frac{3}{4}$	6	$3\frac{6}{7}$	$2\frac{3}{5}$
753	0	70	4	$358\frac{1}{2}$	9	$5\frac{1}{8}$	$9\frac{4}{5}$	8	3	$6\frac{2}{7}$	$16\frac{1}{8}$	$26\frac{2}{3}$	27	$3\frac{1}{2}$	$10\frac{2}{5}$
188	2	17	5	$89\frac{5}{8}$	2	$3\frac{1}{4}$	$2\frac{1}{2}$	2	$0\frac{3}{4}$	$1\frac{4}{7}$	4	$6\frac{2}{3}$	6	$3\frac{7}{8}$	$2\frac{3}{5}$
2132	6	201	4	1030	28	4	$28\frac{4}{5}$	24	$6\frac{2}{5}$	$18\frac{6}{7}$	$48\frac{1}{4}$	$81\frac{1}{8}$	83	$2\frac{3}{4}$	$31\frac{3}{5}$
177	$5\frac{5}{6}$	16	$6\frac{1}{3}$	$85\frac{5}{6}$	2	3	$2\frac{5}{12}$	2	$0\frac{1}{2}$	$1\frac{7}{12}$	4	$6\frac{3}{4}$	6	$3\frac{5}{6}$	$2\frac{2}{3}$
4512	7	420	0	2113	63	2	$63\frac{1}{2}$	55	$1\frac{2}{5}$	$41\frac{1}{3}$	$104\frac{2}{5}$	$172\frac{1}{3}$	181	$1\frac{1}{6}$	$68\frac{2}{5}$
173	$4\frac{3}{5}$	16	$1\frac{1}{4}$	$81\frac{1}{4}$	2	$3\frac{1}{2}$	$2\frac{2}{5}$	2	1	$1\frac{3}{5}$	4	$6\frac{3}{5}$	6	$3\frac{7}{8}$	$2\frac{3}{5}$

DIRECTIONS FOR MAKING BUTTER.

I would first direct attention to the *Churn*, and in order to produce a good marketable article in Butter, particular care must be paid to it; to effect this, the Churn must be sweet and clean, the directions for which will be seen on page 9. Believing this to be accomplished, you then prepare to Churn; but should it so happen, that your Cream be very sour, it will be necessary to mix one gallon of new milk at least with the quantity of Cream requisite for making a Firkin of Butter; on the other hand, if your Cream be sweet, this remark does not apply. The Cream is then poured through a strainer into the Churn; should the weather be warm, it will considerably add to the solidity of the Butter; by pouring two gallons of pure spring water into the Cream-Tub immediately after the Cream had been poured into the Churn, and after washing off the Cream from the sides and bottom of the tub, pour the contents through a strainer into Churn. The best time of the day for Churning in in warm weather, is previous to five o'Clock in the morning; the Churn is then set to work, the motion should be continuous and regular; and particular care taken not to turn it too quickly, for in that case the Cream will not be so productive, and the Butter, instead of being prime, will be soft and spongy; when the Butter is made, you draw off the Milk, and then pour a can of cold spring water (strained) into the Churn; the Churn is again set in motion for a short time, and the water drawn off; this course must be repeated until you observe the water drawn off to be as clear as when poured into the Churn; when this is done, let the Butter be finally washed with a can of strong pickle poured through a strainer into the Churn; the pickle should be sufficiently strong so as to float an egg or potatoe on its surface; the Butter is immediately removed from the Churn and placed in a Keeler, and then made into rolls of from six to seven pounds weight, taking care that each roll is struck hard against the Keeler or butter-table, for the purpose of beating out whatever pickle or water should remain. You then prepare for Salting the Butter, by dividing it into four parts. The usual quantity of Salt for a Firkin of Butter intended for the Foreign Market, is now five pints water measure, and this should be divided into five equal portions—to be used as follows; one pint to be laid evenly on the bottom of the keeler, over which one of the four parts of the butter is to be spread in like manner; a second pint of salt is then strewed evenly over the butter, and covered with the second portion of the butter, and so on until the remaining parts of the butter are treated in a similar way, by which the fifth or last pint of salt covers the whole completely. It may be well to observe, that in making Butter for the London Market, only one-half the quantity of Salt before-mentioned is sufficient, and it should be used in a similar manner to that described for the Foreign Market. It may be well also to state, that during winter one half-ounce of saltpetre, pounded very fine, to the Firkin of Butter, might be mixed with the salt, which is considered by many an improvement. The salt having been thus divided with the butter, the latter is then cut into two parts, making each into a roll, and placing one on the other. It should then be worked at least five times with a dish—the hands not to be used—and the butter is ready for the firkin. The Firkin also requires some attention, and the evening previous to use should be filled with boiling water, and allowed to remain for a short time; you then empty the firkin, and rub the inside well with salt, and before filling it with the butter, turn it upside down, so as to remove any salt that might adhere to the sides or bottom. You then pack the butter in the firkin with a packer and dish to the riddle; shake a little salt on the top of the butter and lay on the packer, placing a weight on it for a few hours. The butter should then be kept in a cool place, and altogether apart from potatoes, or smoke, either of which is sure to injure the flavour of the butter.

In purchasing Salt, the very finest should be procured, and kept in a dry place, and away from smoke. If salt become damp, it loses its flavour, clods, and cannot be properly mixed with the butter.

In conclusion, I would here strongly recommend Farmers to scour their Firkins inside with fine sand, before soaking, and fill them with boiling water. Let them remain so for a few minutes; pour off the warm water and fill with cold water for soaking, changing the water daily, for a few days, before using.

Dairy Farmers should have Scales and Weights to see that their Firkins weighed what they were tared for, before filling, so as not to give butter for timber.

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Blarney, 2nd July, 1844.

DEAR SIR,

I feel much obliged for the very ingenious work on Making Butter which you have enclosed to me; I have read it with great pleasure, and I assure you, I can have no hesitation in saying that it is a work of merit.

I remain yours, &c.,

THOMAS B. MARTIN.

Mr. John Williams.

Garryhankermore, Bandon, May 16, 1845.

SIR,

I have received much pleasure and information from the perusal of your manuscript on DAIRY MANAGEMENT, and if published, I feel confident that both improvement and profit would therefrom be derived in the making of Butter by Dairy Farmers.

I will thank you to send me five Copies.

Very truly yours,

THOMAS J. BIGGS,

Sec. Co. Cork Agricultural Society.

Mr. John Williams, Cork.

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